EMERGENCY FEEDING

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SECTION I - GENERAL

1. PURPOSE OF EMERGENCY FEEDING (EF)

In time of disaster, food is essential for sustaining life, counteracting shock, raising the morale of victims, and providing energy to workers under stress. Therefore, the main purpose of Emergency Feeding is to feed those who have no food or no meal preparation facilities.

2. OBJECTIVES OF EMERGENCY FEEDING SERVICES (EFS)

Emergency Feeding Services have two main objectives:

a) to ensure a minimum level of well-being to survive and cope with disaster.

b) to ensure that special feeding requirements for high risk groups are met (e.g., pregnant women, nursing mothers, infants, children, the elderly and workers).

3. ASSUMPTIONS FOR EMERGENCY FEEDING

In order to plan realistically, the following conditions which would affect the EF Service are assumed:

a) food controls and rationing would be implemented as required;

b) as many evacuees as possible would eat in the homes or reception centres in which they are lodged;

c) mass feeding might be required for a limited time for the total residents and evacuees of a reception community.

4. NUTRITION

a) **Principles**

(i) The need for safe water in emergency is critical. At least one litre (about one quart) per person per day - more if possible - is essential for survival during the first few days. This amount is for drinking purposes only. For infants water becomes a critical need within a few hours. Water must be free from contamination or it must have been made safe by an approved method. (for more details see Annex H.)

(ii) Salt replenishment is essential to replace its loss through body water excretions, perspiration, etc. Three (3) grams or 1/2 teaspoon per person per day is recommended as the amount to best conserve water within the tissues. This requirement is particularly significant when water is scarce, the temperature is high, and food is unavailable or limited. Salt may be included in food or taken separately.

(iii) Carbohydrates such as sugar or hard candies have a physiological benefit to the body, especially when water is scarce. About 400 calories are needed on a daily basis.

b) **Recommended Standards**

- Following the initial few days of an emergency, attention must be given to the need for calories. A target for provision of food, instituted as early in the emergency as possible, should be:

(i) Adults

- 1800 calories per day for sedentary adults.
- 1800-3000 calories per day for those engaged in light to moderate work;
- 3500 calories per day for those engaged in hard physical work;
- After two or three weeks other nutrients besides calories must be considered. An average intake by adults of 30-35 grams of protein per day presents no risk to health over a period of several months. This amount should be increased to 50-60 grams if the protein source is restricted to cereal products;
- If an individual is in good health, there is no need for concern over vitamins and minerals in general for a period of 4 weeks or less.

(ii) High Risk Groups

Infants and Young Children

- Water requirement is critical within hours.
- Calorie requirements must be met quickly.
  Infants should receive 110 calories per kilogram of body weight and 2-3 grams of protein per kilogram of body weight per day. Children from 1 year to 10 years should receive between 1200-2000 calories per day and not less than one gram of protein per kilogram of body weight.
  At least 500 mg of calcium per day should be assured for infants and children.

Pregnant Women and Nursing Mothers

This group should receive 2200-3500 calories, 35-50 grams protein, 1000-1200 mg calcium, and 8-13 mg of iron.

Casualties and the Ill

- This group would be under medical supervision. However it can be assumed that all casualties will suffer some degree of shock requiring provision of additional fluid and soluble, readily assimilated carbohydrate.

- Burn cases will require higher fluid intake and supplementary protein, as will injury cases where there has been a considerable loss of blood. During recuperation, burn and hemorrhage cases should be provided supplemental amounts of iron-rich foods.

- Those suffering from injuries will also require additional amounts of ascorbic acid, thiamin and riboflavin. These should be administered under medical supervision.

c) **Food Priorities**

If, in an emergency, the food situation becomes difficult, a practical guide for establishing priorities is to reserve all the protein, vitamin C, calcium and iron-rich foods for the high risk groups.

d) **Useful Foods**

In the early emergency period when speed and convenience are the main considerations, the following foods could be easily prepared:

(i) soups (dehydrated, canned, or made by diluting canned stew);

(ii) canned meats, canned fish;

(iii) ready-to-serve packaged meals or meals in containers (e.g., beans, spaghetti, stew);

(iv) eggs;

(v) fruit (fresh, canned, dried or dehydrated);

(vi) canned vegetables;

(vii) bread, crackers, biscuits, cookies, baked goods;

(viii) spreads (e.g., butter, margarine, jam, jellies, cheese, peanut butter);

(ix) ready-to-serve cereals;

(x) commercially prepared infant formula; and

(xi) beverages (tea, coffee, cocoa, juice, fresh, skimmed or powdered milk).

NOTE: The above nutritional recommendations are mainly for healthy individuals with a satisfactory state of nutrition at the onset of an emergency situation. However, it must be stressed that as soon as possible, food intake should meet the recommendations of the Dietary Standard for Canada - or its more simplified interpretation in Canada's Food Guide.

5. EMERGENCY FEEDING PROBLEMS

a) Main Problems

The main problems to be faced in planning for emergency feeding are:

(i) uncertain food supplies;

(ii) the large numbers of evacuees to be fed;

(iii) the feeding of special groups, including infants, sick people and workers;

(iv) the need for various types of food service (e.g., mobile kitchens, mobile canteens);

(v) the transportation of prepared food;

(vi) disrupted utilities;

(vii) maintaining sanitary practices, and

(viii) the need for extra workers, many of whom will require training.

b) Health Problems

The principles of good personal hygiene are well established. However, application requires constant checking by Supervisors, especially when volunteer workers are involved in food handling. Emphasis should be

placed on using the resources of local public health professionals to ensure proper sanitation procedures. Do not allow persons with colds, open sores, cuts, pimples, or diarrhoea to handle food.

c) **Sanitation**

Unsanitary handling of food can be a serious health hazard. This hazard is even greater in an emergency, when food workers are rushed and under stress. Thus, extreme care must be taken to avoid food contamination and the spread of communicable diseases through careless practices. To ensure safe food, strict supervision must be maintained on the sources of water supply, storage of food, personal hygiene of food workers, protection of food from contamination during preparation, sanitary disposal of waste, effective dishwashing procedures and the sanitary maintenance of emergency feeding premises.

d) **Precautions Against Food Contamination**

After ensuring that the water and food to be used in food preparation are clean and safe, precautions must be taken to ensure the food is not contaminated during preparation. Foodborne illnesses can be avoided by following good food handling practices. These are:

(i) Potentially dangerous foods should be avoided e.g., gravies and sauces, meat hash, meat and poultry stuffings, meat and fish salads, creamed dishes, custards, cream fillings, and raw milk.

(ii) All equipment must be scrupulously clean (e.g., tables, knives, other utensils, food preparation equipment such as choppers, mixers, beaters, and containers for transporting food and liquids). This requires hot water 77°C (170°F), soap and disinfectant.

(iii) Perishable foods must be refrigerated until used for cooking. If no mechanical refrigeration is available use improvised refrigeration (see Annex G for details).

(iv) Boiling and cooking foods under pressure are great aids to safety. Therefore, any available equipment of this type should be used to the fullest extent possible.

(v) After cooking, foods should not remain at room temperature. Food should be prepared as close to serving time as possible, and kept hot above 60°C (140°F) until served.

(vi) Thickened foods should be avoided, if they have to be transported any great distance. In these situations, soups and stews can be prepared without thickening.

(vii) Sandwiches should be labelled indicating the kind, date and time of preparation. These should not be served if they have been at room temperature for more than two hours. Keep cold food at 4°C (40°F).

(viii) The use of leftover foods should be avoided. If these foods must be used, they should be kept refrigerated and covered and before serving should be rapidly reheated immediately above 60°C (140°F) or to boiling temperature.

e) **Dry Food Storage**

Under disaster conditions, storage facilities may not be ideal. However, the following principles contribute to good storage practices and should be observed as closely as possible.

(i) The area should be kept cool, dry, clean, orderly and protected against rodents and insects.

(ii) All food should be stored off the floor or ground on shelves, or on slatted floor racks to protect against dampness.

(iii) Staple foods should be stored in galvanized cans or other covered containers.

(iv) When opening food containers a check should be made for signs of spoilage or infestation. If spoiled food is found, it should be destroyed promptly.

(v) If food is not to be used soon, the containers should be dated so that the oldest stock will be used first.

f) **Refrigerated Storage**

Regardless of the type and amount of refrigeration facilities available in disaster, the following procedures should be followed:

(i) overcrowding of food should be avoided;

(ii) cooked food should be cooled quickly by refrigerating below 4°C (40°F), and

(iii) the refrigerator interior, shelves and containers should be washed regularly with any bleach solution available or baking soda and water.

g) **Care of Milk Supplies**

If pasteurized milk cannot be obtained, one of the following methods may be used to treat raw milk:

(i) Flash Pasteurization

With frequent stirring, the milk should be heated to 76.6°C (170°F) in a double boiler, removed from heat and allowed to stand for one minute. It can be cooled quickly to 10°C (50°F) by placing the top section of the boiler in cold water.

(ii) Simmer Method

With frequent stirring, the milk should be heated in a pan until it simmers (bubbles begin to form), and maintained at this heat for one-half minute. It can be cooled by placing the pan in cold water. If fluid milk is to be stored for extended periods, it must be refrigerated. If refrigeration facilities are lacking, careful planning will be required to prevent the necessity of keeping large quantities on hand. These precautions in storing also apply to reconstituted dried milk.

h) **Manual Dishwashing Procedures**

(i) With Adequate Potable Water

- Scrape and rinse equipment and utensils before washing.
- Clean and sanitize in a three-compartment sink (or three large containers).
- Wash with detergent and hot water of sufficient depth to cover utensils or equipment. Keep the water reasonably clean and maintain the detergent concentration according to the manufacturer's recommendation.
- Rinse in clean hot water.
- Sanitize by one of the following methods:

  a. Immerse for at least two minutes in clean hot water at a temperature of at least 77°C (170°F).

  b. Immerse for one and a half minutes in boiling water.

c. Immerse for at least two minutes in a solution containing a disinfectant agent such as chlorine, iodine, quaternary ammonium compounds, or other approved chemical, at a strength recommended by the manufacturer.

- Use mesh baskets with handles for rinsing and sanitizing process if improvisation is necessary.

- Air dry to prevent recontamination from drying towels.

(ii) With Inadequate Potable Water

The following procedures are recommended for washing utensils only when extreme measures are required:

- Wash with detergent and hot water if possible. If not, wash in cold water with detergent or soap, using friction on all surfaces.

- Immerse for at least two minutes in a solution containing a disinfectant agent. If there is any doubt concerning the safety or quality of the water, immerse the utensils for at least two minutes in a solution of twice the minimum recommended strength.

- Allow utensils to air dry on a clear surface.

i) **Garbage Disposal**

If normal disposal services are interrupted in emergency, public health authorities must be consulted concerning acceptable methods for disposal of waste. The following procedures are suggested for food service areas:

- Place food waste and wet garbage in leak-proof, non-absorbent, easily cleaned containers with tight fitting covers. Hold in a separate enclosed area until disposal can be carried out by an approved method.

- Incinerate dry waste and trash (if unable to burn, then bury it).

j) **General Cleanliness**

During an emergency when food service operations will be difficult, staff and volunteers can easily develop careless habits. Every effort must be made to keep food service areas as clean and tidy as possible. To maintain a satisfactory standard of cleanliness, the following practices should be observed:

- Keep all food service areas neat and free from rubbish and litter.

- Clean floors using a material for controlling dust.

- Maintain work surfaces clean to sight and touch and sanitize as often as is necessary to maintain them in a sanitary condition.

- Use mops made of materials that can be easily sanitized.

- Line garbage cans with plastic liners. Keep covered and remove frequently from food service areas. Clean and sanitize regularly.

SECTION II - ORGANIZATION

1. PLANNING FOR FOOD SUPPLY

- Planning for all types of food supplies for emergency use is the responsibility of the National Emergency Agency (NEA) for Food, which comes under Agriculture Canada.

- Agriculture Canada has indicated that stock processors, wholesale and retail establishments would come under the control of the NEA. Stocks would be released only on the authority of the NEA and in such amounts as would be practicable according to local conditions.

2. EMERGENCY FEEDING

To go into immediate operation, Emergency Feeding must be planned and organized in advance. Before an Emergency Feeding Chief is appointed there must be:

- A municipal Coordinator of Emergency Services.

- A basic municipal civil emergency plan.

- An Emergency Social Services Director (ESSD).

- An Emergency Social Services (ESS) Planning Committee.

3. CHIEF OF EMERGENCY FEEDING

The appointment of a Chief of Emergency Feeding would be made by the Emergency Social Services Director. At an early stage, a Deputy Chief should also be appointed. The Chief of Emergency Feeding should meet the following criteria:

a) **Qualifications**

(i) A practical knowledge of quantity feeding.

(ii) A knowledge of the community.

(iii) Initiative.

(iv) An ability to organize and delegate work.

(v) Leadership qualities.

(vi) Basic training in civil emergency planning and ESS.

b) **Responsibilities**

The overall responsibilities of a Chief would include:

(i) Conducting EF surveys.

(ii) Developing an EF plan to suit the needs of the community in disaster.

(iii) Selecting and training staff.

(iv) Establishing and maintaining workable plans and relationships with other municipal Emergency services.

(v) Controlling the operation of the EF Service at Municipal Emergency Government Headquarters (Headquarters), during the emergency period.

(vi) Controlling the operation of the Emergency Feeding Services (EFS) of the Emergency Hospitals.

(vii) Coordination with other National Emergency Agencies (NEA's).

4. PLANNING COMMITTEE

To assist with the detailed planning required, the Chief should select a small group of community people who have experience in various aspects of feeding. Details of the committee are as follows:

a) **Composition of the Emergency Feeding Planning Committee**

(i) Restaurateurs, innkeepers.

(ii) Dietitians, Nutritionists, Home Economists.

(iii) Food supervisors in institutions, schools, colleges, department stores, industry or catering establishments.

(iv) Representatives from voluntary organizations which are involved in feeding (e.g., church groups, national organizations, meals on wheels).

(v) Representatives from the Public Health Department.

b) **Responsibilities of the EF Planning Committee**

(i) Carrying out Emergency Feeding surveys.

(ii) Developing the EF Service.

(iii) Preparing the EF operational plan.

(iv) Continuing assessment of problems likely to be faced or that could develop.

(v) Designating feeding establishment for specific operational use (vacant buildings, outdoor sites).

(vi) Determining the need for extra staff.

(vii) Assembling EF reference material and records of resources for operations at Headquarters.

(viii) Assessing the total EF needs and deciding on the best use of existing EF resources.

5. SUPERVISOR OF EMERGENCY FEEDING

The Supervisor of Emergency Feeding should meet the following criteria:

a) **Qualifications**

(i) A knowledge of the community.

(ii) An ability to work with people under stress.

(iii) An ability to organize and delegate work.

(iv) A practical knowledge of quantity feeding.

(v) Leadership qualities.

(vi) Basic training in civil emergency planning and Emergency Social Services.

b) **Responsibilities**

The overall responsibilities of EF Supervisor would include the following:

(i) Providing specific information regarding the space, equipment, supplies and staff required by the EF Service in the Reception Centre.

(ii) Deciding on the best use of existing feeding establishments within the Reception Centre Area to meet the requirements within that particular Reception Centre Area.

(iii) Assisting with the training of EF workers.

(iv) Operating and administering all the EF activities within the Reception Centre Area.

(v) Providing Headquarters with a daily situation report (SITREP).

SECTION III - PLANNING FOR EMERGENCY FEEDING SERVICES

1. DEVELOPMENT OF A PLAN

Plans for the Emergency Feeding Services should be developed by the Emergency Feeding Chief and his Planning Committee, in consultation with the Emergency Social Services Director. The EF plan must meet the particular needs of the community in relation to the number, composition and requirements of those who have no food and/or food preparation facilities.

The main body of the Emergency Feeding Plan consists of the following:

- Organization chart(s) showing positions and lines of authority. Included could be a chart showing the relationship of EF with the overall municipal EWS organization, and one showing the operational lines for EF at the three levels of government.

- Overall responsibilities of the EF Service to include anticipated numbers where possible, such as the number of evacuees being planned for the capacity and the number of staff of Emergency Hospitals and Civilian Advanced Treatment Centre (ATC).

- Basic policies of operation (e.g., for hot drink and infant formula) at Reception Centres, for two emergency type meals for those being fed by the EF Service, three standard infant formulas for those unable to reach the Reception Centre. (For more details see Annex D).

- Responsibilities of Supervisors.

- Overall responsibilities of Reception Centre Managers.

- Responsibilities of Supervisors.

- Warning chart and system for alerting and mobilizing staff and workers.

- Means of communication between:

  (i) Chief at Headquarters and Supervisors at Reception Centres.

  (ii) Supervisors at Reception Centres and EF establishments within the Reception Centre Area (e.g., restaurants, churches, hotels).

  (iii) Municipal Chief and Zone Chief.

Standard Operating Procedures

(i) Obtaining support from municipal emergency services (e.g., through Headquarters).

(ii) Obtaining supplies and equipment from the National Emergency Agency (NEA) for Food, which comes under Agriculture Canada.

(iii) Obtaining extra workers, if required (untrained workers through the Department of Employment and Immigration and additional trained workers through EF Chief at Headquarters).

2. GUIDELINES FOR EMERGENCY FEEDING PLANNING AND ORGANIZATION

Emergency Feeding planning and the Emergency Feeding organization should be developed systematically. The following steps are suggested:

a) Appointing an EF Chief and selecting an EF Planning Committee.

b) Contacting establishments to be surveyed.

c) Conducting EF surveys.

d) Compiling the survey data for permanent records.

3. EMERGENCY FEEDING SURVEYS

- In the absence of specific information, the Emergency Feeding Services should conduct surveys of all available supplies and equipment essential to its operation. The Chief of Emergency Feeding has the overall responsibility, but would be assisted by members of the Emergency Feeding Planning Committee.

- Individual members of the Planning Committee could direct the necessary surveys in specific areas of their community. All survey workers should be briefed by the Chief concerning a common approach and the details to be recorded.

4. SPACE, EQUIPMENT AND SUPPLIES

The requirements for space, equipment and supplies will vary under different circumstances. However, these should be considered in relation to the locations of:

- Headquarters;

- Reception Centre, and

- of other Emergency Feeding installations.

5. FACTORS INFLUENCING EMERGENCY FEEDING

Certain guiding principles are common to any kind of emergency feeding either indoor, outdoor or mobile. These principles relate to location of serving area, space, equipment requirements and arrangement of serving lines. For example:

a) **Location of Serving Area**

(i) If a serving area must be improvised, a large clear area which can accommodate feeding line(s) should be chosen.

(ii) If food is prepared on the premises, the serving area should be placed as close as possible to the kitchen.

(iii) If food is prepared elsewhere and brought in, the serving area should be set up as close to the delivery entrance as possible.

(iv) The serving line(s) should be arranged as close as possible to the eating area.

b) **Space**

For a single line, improvised counter arrangements serving an emergency-type menu, provide 300 centimetres (about 10 feet) of counter length with 120 to 135 centimetres (about 4 to 4 1/2 feet) of space for servers behind the counter. Allow sufficient space in front for people to pass and to pick up their food. (For more details see Annex F)

c) **Equipment**

The following minimum equipment is suggested:

(i) Serving tables (improvised from planks placed on trestles, bricks, concrete blocks, or empty oil drums).

(ii) Large containers (in which to cook food).

(iii) Large pitchers.

(iv) Serving utensils (ladles, tongs, forks, large spoons).

(v) Trays, pans, bowls, lined cardboard boxes (for bread, sandwiches, fruit, cookies, sugar).

(vi) Eating utensils.

6. OPERATIONAL SITES

a) Indoor Feeding

(i) Facilities

In planning for Emergency feeding in a reception community the first facilities to consider are the existing ones. They usually require only slight modification for emergency purposes. Whenever possible, heavy food production should continue in its normal location. This contributes to more economical use of supplies, equipment workers and transport. Indoor feeding could take place in:

- existing facilities (restaurants, cafeterias, clubs, hotels, schools, church halls);

- improvised indoor facilities using vacant buildings.

(ii) Use of Facilities

Existing feeding establishments may be used in three different ways depending on their layout, size and location as follows:

- *For Food Preparation and Meal Service*

  These functions can be continued when both preparation and service facilities are adequate for large numbers of people (large restaurants, hotels, cafeterias, institutional dining halls).

- *As Auxiliary Kitchens*

  Many small or isolated establishments such as snack bars, diners, country clubs, "drive-ins", which normally cannot handle large crowds could if necessary prepare substantial quantities of food for service elsewhere.

  In some communities, other cooking facilities may be found in factories and plants with large vats and ovens. These would be used only if not needed for industrial purposes during the emergency.

- *As Feeding Station*

  Arenas, large public halls, and other buildings with space for line feeding could be used to serve food which has been prepared in other locations.

b) **Outdoor Feeding**

Improvised outdoor feeding might be required in any community where there is destruction of existing feeding establishments, disruption of public utilities and/or inadequate existing feeding facilities to cope with the number to be fed.

(i) Selecting a Site

Desirable features for an outdoor feeding site are:

- Level, well-drained ground. Besides ensuring dry ground, well-drained ground helps to prevent accidents.
- Shade.
- Within walking distance of those to be fed.
- Accessibility to supply routes.
- Proximity to safe drinking water.
- Located in an area free of excessive shrubbery, broken glass, tin cans or other trash, stones and stagnant pools.

(A traffic flow chart on outdoor feeding is available in Annex C).

c) **Mobile Teams**

A mobile feeding team would play an important role in the Emergency Feeding program. It might be required for groups of evacuees and/or workers temporarily unable to come to Feeding Stations, and in re-entry operations where other feeding facilities were non-existent. Each Reception Centre must be prepared to send Mobile Emergency teams where needed. Mobile feeding can be carried out by one of the following means:

(i) Mobile Canteen

This is a simple unit equipped for serving food prepared elsewhere. It has limited use and must be replenished with food and eating utensils frequently. A truck, station wagon, jeep or automobile can be made into a mobile canteen by the addition of portable sections which can be dismantled easily.

The following equipment would be required for simple ready-to-eat foods which can be easily transported and served:

- A unit to heat or keep food warm (above 60°C 140°F).
- Serving utensils.
- Disposable plates, cups and eating utensils.
- Spoons (if required).
- Containers for food and liquids.
- Garbage cans.
- A folding table (for serving).

(ii) Mobile Kitchen

This is a unit consisting of one or more vehicles fully equipped to prepare and serve food. It carries its own water, food supplies, and fuel. It could be an improvised unit or a more elaborately equipped truck such as caterers use in some communities.

7. MOBILE FEEDING UNIT (HEALTH AND WELFARE CANADA)

This is a mobile kitchen composed of equipment stored in 13 wooden boxes and includes two tables. The equipment provides the capability of providing a simple menu for two hundred (200) persons per hour on a continuous basis.

SECTION IV - TRAINING

1. BASIC TRAINING IN CIVIL EMERGENCY PLANNING

The Chief and Supervisors of Emergency Feeding would benefit by attending a course on Community Emergency Planning. It is suggested that courses be made available at provincial and community levels for people who are members of Planning Committees.

2. SELECTING AND TRAINING WORKERS

The Chief and Supervisors would select the staff to carry out the designated feeding job for the reception community.

Only key workers need to be recruited and trained prior to an emergency. Other workers such as kitchen helpers, servers, and dishwashers who do not require special training, could be recruited and briefed regarding their duties at the time of an emergency.

After workers have been trained, it is desirable that they be assigned for duty to the particular Reception Centre Area where they live. On an alert, they could report quickly to their designated Reception Centre.

SECTION V - OPERATIONS

1. CRISIS

In a crisis there is no time to develop policies and procedures. Basic policies and procedures for the operation of the Emergency Feeding Service (EFS) must be determined in advance. There would be no time to make such decisions after the emergency occurred.

2. GENERAL

Emergency Feeding (EF) staff and other workers would be alerted by the established warning system for that community (e.g., a "fan out" system). This system should not rely solely on the use of telephones.

3. MOBILIZATION

The Emergency Feeding staff would mobilize. The Chief of Emergency Feeding would go to Headquarters. EF Supervisors would go to their designated Reception Centres and report to their respective Reception Centre Managers. The workers would report to the Reception Centre to which they had been assigned. In some cases, workers might go directly to other previously designated sites of operation (e.g., an improvised institution or a congregate lodging facility). Emergency Feeding workers from affected areas would report at a Reception Centre.

4. BASIC POLICIES OF OPERATIONS

In a crisis the following policies are recommended:

a) Food service in an emergency must be simple and streamlined to essentials only.

b) As a minimum, evacuees arriving at the Reception Centre will receive a hot beverage.

c) The EF Service should provide two meals per day.

d) Standard infant formulas will be prepared until this can be done by the mothers themselves.

e) Maximum use of existing feeding establishments.

f) Improvised feeding facilities will be employed, if existing establishments cannot be used because of disrupted utilities, or if they cannot cope with the large numbers to be fed.

g) Mobile or portable equipment may be required to take feeding services to isolated groups or others unable to come to established feeding facilities. (See annex C and D for more details).

5. STAFF DUTIES AND RESPONSIBILITIES

Successful operation of the EFS depends on a clear understanding of the duties of staff and workers. A description of each follows:

a) Chief of Emergency Feeding

Under the direction of the ESS Director, the Chief would:

(i) Direct EF operations in the community.

(ii) Make policy decisions affecting the EF Service.

(iii) Decide on priorities for equipment, supplies and staff.

(iv) Request extra equipment, supplies, and staff from ESS Director.

(v) Request assistance from supporting municipal emergency services through the (SSD) or the Zone Chief of EF.

(vi) Collate EF requisitions from Supervisors. Answer in-coming messages (message log must be available).

(vii) Maintain an EF message log showing clearly the action taken on each message. It should also indicate messages which had not yet been handled.

(viii) Maintain an up-to-date record of the current EF situation by means of a resources board or other means. It should show the numbers being fed, EF resources committed to use and the remaining resources.

(ix) Continually analyze the EF situation and prepare situation reports for the ESS Director for the information of zone Headquarters.

(x) Give advice to EF Supervisors as required.

(xi) Request advice from the Director of the zone, if required.

(xii) Establish a shift system for 24-hour operation.

(xiii) Delegate authority during absences.

(xiv) Ensure situation reports (SITREP) are received and acted upon.

b) **EF Supervisor at Reception Centre**

Duties of the EF Supervisor

(i) Direct EF operations within the Reception Centre Area and maintain contact with all EF establishments and sites therein, to include: equipment, supplies and staff as required, menus, schedules.

(ii) Implement policies and procedures as directed.

(iii) Supervise workers.

(iv) Collate orders submitted by the persons in charge of individual EF establishments (owners, managers, cooks) within the Reception Centre Area and send to Headquarters.

(v) Ensure that sanitary and safe working conditions are maintained in all EF areas.

(vi) Maintain records as required, including a record of all communications to Headquarters.

(vii) Continually analyze the situation and report to the Chief at Headquarters through appropriate channels.

c) **Duties and Responsibilities of other Staff**

Existing feeding establishments converted to emergency use would, as far as possible, use their own permanent staff. In such cases, job descriptions for staff would already exist and would continue to be followed. However, when improvised feeding facilities must be set up, the following list of duties will serve as a guide:

(i) Cooks

- Arrange work space for efficient operation.
- Follow work schedules and assign specific duties.
- Prepare food and schedule its preparation for serving.
- Ensure proper storage of food supplies.
- Plan and assign equipment and food ingredients.

- Keep close watch for spoiled or contaminated food, and consult with Supervisor regarding proper disposal action.

- Ensure sanitary standards in food preparation areas and in storage areas.

(ii) Assistant Cooks

- Assist cooks in their duties.

- Prepare food for transportation if required.

(iii) Kitchen Helpers

- Maintain fires and ensure an adequate supply of hot water.

- Open supplies.

- Wash pots and containers used for transporting food.

- Deliver food to service counters.

- Clean food preparation area and storage areas, counters, equipment and floors.

(iv) Food Servers

- Set up efficient service counter.

- Place cutlery, milk, sugar, and condiments for self-service where minimum cross traffic will occur.

- Portion to be served as indicated by supervisor.

- Set up garbage disposal locations in the eating area.

- Serve people as they go through the line.

- Keep the food preparation workers informed of food requirements.

- Keep serving area neat and clean during period of service.

- After completion of serving:

    - clear the serving counter;

- transfer leftover food to kitchen area;
- dispose of trash from serving area, and
- clean counters, equipment and floor in serving area.

(v) Dishwashers and General Cleaners

- Set up dishwashing facilities as required.
- Wash all eating equipment.
- Maintain cleanliness in dishwashing area, and assist with other cleaning requirements as duties allow.
- Dispose of garbage and sterilize garbage containers.

FEEDING CHILDREN IN AN EMERGENCY

1. GENERAL

a) Small infants cannot tolerate long periods without feeding before becoming dehydrated and ill from lack of water. Good infant feeding services would be a comfort to both infants and their mothers.

b) The risk of infection, particularly by organisms which cause vomiting and diarrhea, would be increased under emergency conditions. Feeding must be prepared as carefully as possible to minimize the risk of milk-borne infection and also to avoid utilizing unsafe water.

c) Breast-feeding is the safest and most efficient way of coping under the above mentioned problems, consequently nursing mothers should receive priority in provision of food and water.

2. BREAST-FEEDING

Breast-feeding [1] is a simple, normal function, and a natural system of supply and demand that best serves mother and baby. There are certain advantages to breast-feeding. Both the Canadian Pediatric Society and Health and Welfare Canada emphasize these health benefits:

- Human milk is uniquely suited to the baby's nutritional needs;

- human milk is easy to digest and contains substances which help prevent infection and to protect against allergies;

- breast-feeding brings a mother and baby together emotionnally as well as physically. This special closeness helps build a secure and loving relationship.

Bottle feeding under ideal conditions can also produce healthy babies, but Canadian mothers should seriously consider breast-feeding as the ideal way.

Helpful hints for the early weeks

Breast-feeding is the easy and natural way of learning to mother a baby. Besides providing complete food and protection from infection and allergy, breast milk is easily and rapidly digested. Even more important, breast-feeding

1 Breast-feeding, Health and Welfare Canada, 1980

means the comforts and delights of a special closeness with the mother and the newborn. The security of her arms, the softness of her touch, the sound of her voice - these things, together with the superior nourishment of the mother's milk, help the baby grow and thrive.

BREAST-FEEDING MOTHERS AND INFANTS

Mothers who choose to breast-feed their infants should be encouraged to continue breast-feeding for a period up to six or twelve months. This could be longer if this is satisfactory to the mother and child.

3. **WATER**

Second only to oxygen, water is necessary for survival. Requirements are related to energy consumption and urine output. The infant must consume large amounts of water per unit of body weight greater than the adult.

4. **AVERAGE MILK INTAKE BY AGE**[2]

Details are as follows:

AGE	NUMBER OF FEEDINGS	AMOUNT PER FEEDING
Birth to 1 week	6-10 per day	breast milk or formula
1st and 2nd week	8 per day	breast milk or formula 60-90 mL (2-3 ounces)
3 weeks to 2 months	6-8 per day	breast milk or formula 120-150 mL (4-5 ounces)
2-3 months	5-6 per day	breast milk or formula 150-180 mL (5-6 ounces)
3-4 months	4-5 per day	breast milk or formula 180-210 mL (6-7 ounces)
*5-12 months	3-4 per day	breast milk or formula 210-240 mL (7-8 ounces)

If the baby is still hungry after this amount of milk at each feeding offer a total of 2-3 tablespoons of cereal, vegetables or fruit.

2 Adapted from Nelson Textbook of Pediatrics, tenth edition, 1975, p. 175

* Cereals, vegetables, fruits and meats can be started slowly after 5-6 months throughout this time. Breast milk and/or formula should still be the major form of nutrients for all infants up to their first birthday.

Note: These figures are only rough guides.

5. CHART OF CALORIC REQUIREMENTS FOR CHILDREN

The energy requirement for infants have been calculated in accordance with the Dietary Standard of Canada, manual 3 which recommended:

a) 0-6 months 117 kcal. (489.7 kJ) per kg. of weight
b) 7-11 months 108 kcal. (452 kJ) per kg. of weight

Example: 4-month infant weighing 7 kg or (15 1/2 lbs) requires 117x7 = 819 calories (3428 kJ)
8-month infant weighing 9 kg or (20 lbs) requires 108x9 = 972 calories (4068 kJ)

6. SAMPLE FORMULAS FOR ONE DAY'S SUPPLY4

Weight of baby	3 kg (6 lbs)	4.5 kg (9 lbs)	6 kg (12 lbs)
Whole evaporated milk (canned)	187 mL (6 oz)	281 mL (9 oz)	374 mL (12 oz)
Water	374 mL (12 oz)	468 mL (15 oz)	561 mL (18 oz)
White granulated sugar	30 mL	30 mL	30 mL
Fresh whole milk	374 mL (12 oz)	561 mL (18 oz)	749 mL (24 oz)
Water	187 mL (6 oz)	187 mL (6 oz)	187 mL (6 oz)
White granulated sugar	30 mL	30 mL	30 mL
Total (approx.) 15 mL = 1 tablespoon	561 mL (18 oz)	749 mL (24 oz)	936 mL (30 oz)

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3 Dietary Standard for Canada, Health and Welfare Canada, Revised edition, 1979, p. 78

4 The Canadian Mother and Child - Health and Welfare Canada, Fourth edition, 1979, p. 165

7. BOTTLES

The number of bottles into which to divide the formula depends upon the number of bottles the baby is taking in 24 hours. Most newborn babies take five to seven bottles of smaller feeding per day; by 3 months of age, they may be taking four or five bottles of larger amounts.

Babies 1-2 years old can be introduced to table foods and offered milk straight from the carton without heat treating. Whole milk and 2% are fine. Offer skim milk after two years of age.

8. METHODS OF PREPARATION TO ENSURE SAFETY

a) Terminal Sterilization of Feeding Bottles

This is the best method as long as sufficient bottles, nipples and caps are available. The procedure would be:

(i) Utensils and bottles washed in hot water and detergent and rinsed in clear hot water.

(ii) Nipples washed and tested for flow, and then boiled for five minutes.

(iii) Top of can washed, if canned milk is used.

(iv) Formula ingredients measured. If powdered milk is used, a small amount of the water can be added to the powdered milk to make a paste, and then the remaining water and sugar added.

(v) Bottles filled with milk mixture using funnel or improvised wax paper or aluminum foil funnel.

(vi) Nipples and caps put on bottles (caps put on loosely to allow steam to circulate around nipples).

(vii) Boiled in covered water bath for 25 minutes with the water level slightly below milk level.

(viii) Cooled two hours at room temperature.

(ix) Caps tightened and bottles at 4 to 7°C (40° - 45°F).

9. IMPROVISATION

In an emergency some improvisation may be necessary. Here are some suggested substitutes for nursing bottles, nipples and cool storage:

a) Bottles

If nursing bottles are not available, empty soft drink bottles, beer bottles can be used providing they are thoroughly washed, rinsed, sterilized and the nipples fit. The best type of nipples to have on hand for an emergency is a type which fits a narrow bottle.

b) Nipples

It is difficult to suggest a substitute for nipples. However, if necessary infants could be fed by sterile spoon. Those over six months are often familiar enough with drinking from a cup to be fed that way. Paper cups from a sealed package could be used.

c) Cool Storage

A 1.3 metre cube (14 cubic feet) refrigerator provides space for 450 feeding bottles, almost a full day's supply for 50 infants and for 50 children one and two years of age. Therefore, every effort should be made to acquire this space in places where infant formulas are being prepared in quantity. If neither refrigeration nor other cool storage is available, cooled bottles of prepared formula could be wrapped in wet newspapers to extend the recommended two-hour period at room temperature to a maximum of four hours. Care must be taken so that the paper does not dislodge the bottle caps.

10. SOLID FOODS

It is difficult to keep older infants satisfied for very long periods on milk; so it would be desirable to have stocks of pre-cooked infant cereals available. A serving of two to three tablespoons, dry for mixing with the infants milk ration twice a day would be a suitable amount. This would be given by sterile spoon. In the absence of other appropriate infant foods it could be given more often and in larger quantities accordingly to the age of the infant.

11. FOOD SUBSTITUTES

If milk or infant cereals were not immediately available, serious water loss in the baby must be prevented by giving boiled water or any sweet liquid.

Other possibilities are: canned or cooked meats, non-fatty fish or vegetables finely sieved and spoon fed, crackers or biscuits mixed with any safe liquid.

If emergency feeding of infants should extend beyond a month, it might be necessary to provide 30 milligrams Vitamin C and 400 International Units Vitamin D daily. The Vitamin D content of the canned milk formulas should also be noted.

APPROXIMATE CALORIC CONTENT OF SOME COMMON INFANT FOODS

NOTE: TABLESPOON MEASURES ARE LEVEL TABLESPOON

MILK AND MILK PRODUCTS	PORTION	METRIC	CALORIES	KILOJOULES
Commercial infant formulas	1 fl. oz	30 mL	20	84 kJ
Cottage cheese (creamed)	1 tbsp.	15 mL	15	63 kJ
Cottage cheese (uncreamed)	1 tbsp.	15 mL	11	46 kJ
Whole milk	1 fl. oz	30 mL	20	84 kJ
Yoghurt, plain (made from skimmed milk)	1 tbsp.	15 mL	8	34 kJ
MEAT AND MEAT ALTERNATES				
Baked beans	1/4 cup	55 g	90	378 kJ
Egg, white only			15	63 kJ
Egg, yolk only			60	252 kJ
Egg, whole			80	336 kJ
Soybean curd (tofu)	1 tbsp.	15 mL	11	46 kJ
Strained and junior	1 tbsp.	15 mL	17	71 kJ
meats (commercial)	1 jar	100 g	104	437 kJ
Cheese (cheddar)	1 oz.		115	483 kJ
FRUITS				
Juices - Strained unsweetened (commercial)	1 fl. oz	30 mL	16	67 kJ
Fruit - Raw: apple, medium-sized,	1/2 portion		44	185 kJ
banana, medium sized	1/2 portion		66	277 KJ
orange	1/2 portion		34	143 kJ
- Strained unsweetened (commercial)	1 tbsp.	15 mL	11	46 KJ
Unsweetened orange juice	1 jar	130 mL	114	479 kJ
- Junior unsweetened	1 tbsp.	15 mL	11	46 kJ
(commercial)	1 jar	215 mL	186	781 kJ

Nutrition Professional Guide, (First Year Infant Nutrition Guide), Published by British Columbia Ministry of Health, Division Community Nutrition.

VEGETABLES	PORTION	METRIC	CALORIES	KILOJOULES
Raw - green pepper	1/4 shell		6	25 kJ
Cooked - carrots	1/4 cup	55 g	12	50 kJ
- green beans	1/4 cup	55 g	9	38 kJ
- sweet potato	1 tbsp.	15 mL	15	63 kJ
- white potato (mashed with milk)	1 tbsp.	15 mL	8	34 kJ
Strained, plain (commercial)	1 tbsp.	15 mL	6	25 kJ
	1 jar	130 mL	59	248 kJ
Junior, plain (commercial)	1 tbsp.	15 mL	6	25 kJ
Junior, mixed (commercial)	1 jar	215 mL	103	433 kJ
BREAD AND CEREALS				
Arrowroot biscuits	1 biscuit	28 g	21	88 kJ
Bread	1 slice	30 g	77	323 kJ
Cereal-Commercially prepared, infant (dry)	1 tbsp.	15 mL	18	76 kJ
Adult - strained rolled oats (cooked)	1 tbps.	15 mL	9	38 kJ
- cream of wheat (cooked)	1 tbsp.	15 mL	8	34 kJ
Wheat germ	1 tbsp.	15 mL	18	76 kJ
Nutritional yeast	1 tbsp.	15 mL	27	113 kJ
Pasta	1/4 cup	55 g	47	197 kJ
Rice - brown (cooked)	1/4 cup	55 g	50	210 kJ
- converted (cooked)	1/4 cup	55 g	46	193 kJ
- white (cooked)	1/4 cup	55 g	54	227 kJ
Teething biscuits	1 biscuit	28 g	43	181 kJ
OTHER				
*Strained "meat with	1 tbsp.	15 mL	11	46 kJ
vegetables" dinner	1 jar	130 mL	109	458 kJ
*Junior "meat with	1 tbsp.	15 mL	11	46 kJ
vegetables" dinner	1 jar	215 mL	180	756 kJ
**Strained "vegetables with	1 tbsp.	15 mL	8	34 kJ
meat" dinner	1 jar	130 mL	74	311 kJ
**Junior "vegetables with	1 tbsp.	15 mL	9	38 kJ
meat" dinner	1 jar	215 mL	131	550 kJ
Strained desserts	1 tbsp.	15 mL	14	59 kJ
	1 jar	130 mL	131	550 kJ
Junior desserts	1 tbsp.	15 mL	13	55 kJ
	1 jar	215 mL	211	886 kJ

Infant Nutrition Guide, Nutrition: Professional Guide - First Year Published by British Columbia Ministry of Health, Division Community Nutrition, Table 6, p. 51-53

*Protein content is only about 1/2 that of strained or chopped meat.
**Protein content is only 1/6 that of strained or chopped meat.

SOURCES OF CARBOHYDRATES

	PORTION	METRIC	CALORIES	KILOJOULES
Dextri-maltose	1 tbsp.	15 mL	27	113 kJ
Lactose (3 1/2 kcal/gram) or (14.7 kJ/gram)	1 tbsp.	15 mL	45	189 kJ
Dextrose	1 tbsp.	15 mL	45	189 kJ

*NOTE: Commercially-prepared infant foods

- 130 mL jars (4 1/2 fl. oz.) hold approx. 8 1/2-9 level tbsp. of infant food
- 215 mL jars (7 1/2 fl. oz.) hold approx. 14 level tbsp. of infant food.

*NOTE:
1. Prepare only sufficient food required for each feeding.
2. Do not store any leftover prepared foods.

SAMPLE MENU PATTERN*

FEEDING	4-5 MONTHS	6-7 MONTHS	8-9 MONTHS	11-12 MONTHS
Morning	(150-180 mL) milk	(180-250 mL) milk		
Breakfast	(25-45 mL) cereal (150-180 mL) milk	(45-75 mL) cereal (180-250 mL) milk (30-60 mL) juice	(60-90 mL) cereal (180-250 mL) milk (60-120 mL) juice	(60-90 mL) cereal (180-250 mL) milk (60-120 mL) juice
Lunch	(150-180 mL) milk	(180-250 mL) milk (15-30 mL) meat (15-30 mL) vegetables	(180-250 mL) milk (30-45 mL) meat (45 mL) vegetables	(180-250 mL) milk (45-60 mL) meat (75 mL) vegetables
Dinner	(150-250 mL) milk (25-45 mL) cereal	(180-250 mL) milk (45-75 mL) cereal (15-30 mL) fruit	(180-250 mL) milk (60-90 mL) cereal (30 mL) vegetables (30 mL) fruit	(180-250 mL) milk (45-60 mL) meat (60 mL) vegetables (60 mL) fruit
Night	(150-180 mL) milk			

SOURCE:

*INFANT NUTRITION, A MANUAL FOR HEALTH PROFESSIONALS, (Saskatchewan Nutrition Division), 1978, p. 60.

SPACE, EQUIPMENT AND SUPPLIES

1. SPACE

a) **Headquarters**

(i) Space would be allotted to Emergency Services according to the overall space available for the entire Headquarters operation.

(ii) Adequate space and equipment must be arranged in the Headquarters building to feed the staff who cannot leave the Headquarters during operations. When a shift system is arranged, staff would normally eat in their homes.

(iii) Many buildings chosen for Headquarters will already have kitchen space and cooking equipment. If there is to be a protected site, feeding arrangements for this area must also be planned for in peacetime. This may require improvisation. For example, simple cooking equipment and improvised serving counters may be necessary. These arrangements should be specified in the Emergency Feeding Plan. It is recommended that sufficient food for 14 days be procured and maintained in Headquarters in reception communities. In order to ensure fresh stocks, the food could be rotated regularly through existing provincial or municipal users, such as institutions, or through exercises.

b) **Reception Centres**

(i) Space would be required for both food preparation and food service. If there was an existing kitchen in the building(s) chosen or a Reception Centre, this area would be used for food preparation. If there were no kitchen facilities, 45m x 60m (148ft x 197ft) of space would be required for an improvised kitchen. If this arrangement is not convenient beverages and infant formula could be prepared in existing feeding establishments or in surrounding homes and delivered to the Reception Centre as required. A serving area should be set up in the reception room of the Reception Centre, preferably near an area where people can sit down. Space requirements would be approximately 4.5 m x 5.5 m (15ft x 18ft) for a simple counter arrangement.

(ii) An Assistant Supervisor may or may not be required, depending on the anticipated size of the feeding job within the Reception Centre Area. An Assistant might be assigned to one particular aspect of the work, such as improvised outdoor feeding.

2. EQUIPMENT

a) Equipment for Emergency Feeding

(i) Serving Area

Stoves or hot plates (fueled by propane gas or kerosene)	6 burners
Work table	1
Covered pots (5 or 6 gallon capacity) 23L or 27L	6
Measuring cup	1
Dippers	2
Can openers	2
Covered garbage cans	2
Refrigerator	if possible

(ii) Beverage Service

Covered garbage cans	2
Serving tables	2
Jugs	6
Ladles	4
Disposable cups	as required
Containers for depositing used cups	as required

(iii) Dishwashing Service

Sinks or an improvised dishwashing arrangement including:	3
Work table	1
Large tubs	3
Perforated pails or baskets with handles	2

b) Equipment Used at Headquarters

Standard office equipment would be required as well as special equipment, including a map board, transparent overlays, felt tip markers or marking crayons, a message board.

c) **Reference Material**

The Chief must have essential reference material including a copy of the EF Plan and the EF Manual, as well as records of other EF resources which are not included in the plan.

3. SUPPLIES

a) **Preparation of Beverages (for 2000 persons)**

Coffee regular or	22 kg	50 lbs
Instant coffee or	4.5 kg	10 lbs
Tea	4.5 kg	10 lbs
Fresh milk or		450 kg
	45.5 L	10 gallons
Evaporated milk (16 oz)	4.5 kg	60 cans
Sugar	13.5 kg	30 lbs

b) **Cleaning**

Pails, mops, scrub brushes, broom, dust pan, cloths, soap, detergent, sterilizing compound and paper towels would be required.

OUTDOOR FEEDING

1. LAYOUT

General principles for laying out an outdoor site are:

a) Cooking equipment should be arranged parallel to the serving line. There should be 3.0 m (10 feet) aisle between the two areas at least 1.8 m (6 feet) between open fires.

b) Oven openings should face away from the serving line.

c) The serving line should lead directly into the eating area.

d) Trash cans and a dishwashing unit should be placed at the outer edge of the eating area for people to wash their own utensils. The dishwashing unit may consist of three large containers over a slit trench where the fire is burning. A person should be assigned to this unit to keep water boiling and changed as required, and to keep people moving.

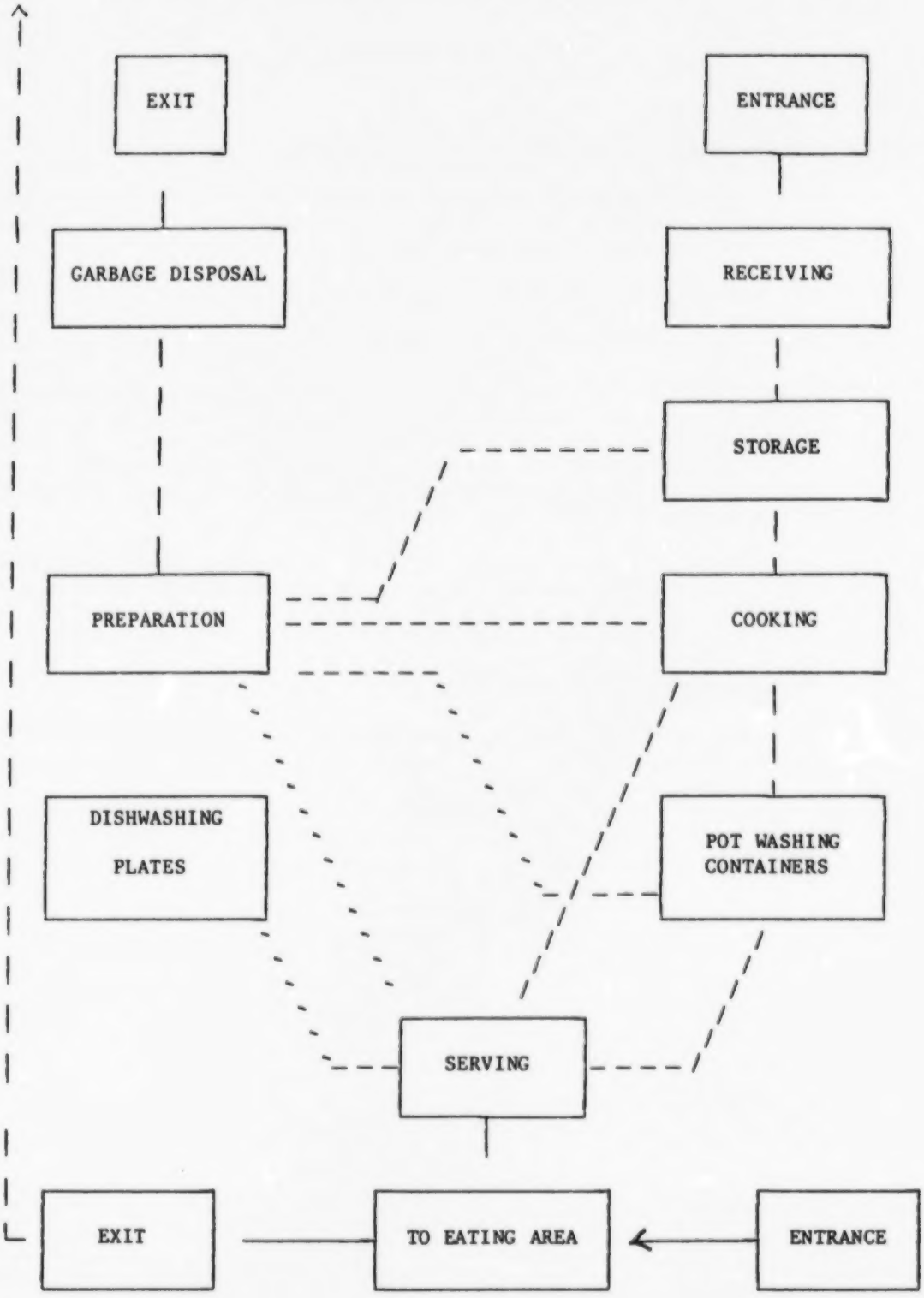
e) A grease trap and soakage pit should be placed at least 8 m (26 feet) away from the cooking area and on the side opposite the eating area.

f) Latrines should be at least 90 m (100 yards) from the cooking site.

2. FLOW CHART

The chart on the following page provides a suggested flow of traffic for an outdoor feeding site.

OUTDOOR FEEDING SITE - TRAFFIC FLOW



EMERGENCY FEEDING MENUS

NO SAFE WATER NO FUEL	SAFE WATER LIMITED FUEL & FACILITIES	FUEL FACILITIES
MENU I	MENU I	MENU I
1. SAFE FLUIDS - CANNED JUICES - LIQUIDS FROM CANNED FRUITS & VEGETABLES	FRUIT JUICE-CANNED PREPARED PACKAGES CEREAL MILK-FRESH, EVAPORATED OR DRY MILK SUGAR BREAD BUTTER, MARGARINE OR JAM BEVERAGE (HOT)	1. CASSEROLE DISH EX: MACARONI WITH MEAT & TOMATOES
MENU II	MENU II	MENU II
2. CANNED FOOD - MEATS - FISH - SPAGHETTI - PORK & BEANS - VEGETABLES - FRUITS - BEVERAGE (CANNED MILK 2%)	SANDWICHES (PROTEIN FILLING SUCH AS: MEAT, FISH, EGGS, CHEESE) BEVERAGE	VEGETABLE STEW AND MEAT FRESH FRUITS (IF AVAILABLE) COOKIES BEVERAGE
MENU III	MENU III	MENU III
- CHEESE - PEANUT BUTTER - JAM CRACKERS - DRIED FRUITS - BEVERAGE (JUICE)	SOUP SANDWICHES	SOUP SANDWICHES FRUITS (DRIED, FRESH OR CANNED) PACKAGED COOKIES BEVERAGES
NOTE: SOME SALT (1/2 TEA SPOON) TO RETAIN BODY FLUIDS; NOT TOO MUCH SINCE FLUIDS ARE RESTRICTED.	NOTE: AVOID FILLINGS MIXED WITH SALAD DRESSINGS (SUBJECT TO BACTERIAL CONTAMINATION).	NOTE: SEE ANNEX E, GUIDE FOR QUANTITY TO PREPARE.

FOOD REQUISITION GUIDE

	Wholesale unit (per case)		Amount for serving		
			50 Persons	200 Persons	500 Persons
1. BEVERAGES					
Coffee (instant)	18 jars	280 g (10 oz)	115 g (4 oz)	450 g (16 oz)	1.3 kg (46 oz)
Coffee (regular)	12 pkgs	450 g (16 oz)	450 g (1 lb)	2.2 kg (5 lbs)	5.4 kg (12 lbs)
Tea (bags)	12 boxes	450 g (16 oz)	170 g (6 oz)	450 g (16 oz)	1 kg (35 oz)
Hot chocolate (10 ind. env. per box)	18 boxes	30 g (1 oz)	1.4 kg (49 oz)	5.5 kg (196 oz)	7.0 kg (247 oz)
Milk (fresh)	1 case	1L (1 qt)	9.5 L (10 qts)	38 L (40 qts)	95 L (83.5 qts)
Milk (evaporated)	48 cans	330 mL (11 oz)	3 cans	12 cans	30 cans
Juice	12 cans	1.4 L (48 oz)	5 cans	19 cans	46 cans
Milkette (1 oz cup)	100 per box	30 g (1 oz)	50 milkettes	200 milkettes	500 milkettes
Sugar	200 sachets	30 g (1 oz)	50 sachets	200 sachets	500 sachets
2. SOUPS (diluted with milk or water)					
Vegetables	48 cans	285 mL (10 oz)	20 cans	80 cans	200 cans
Rice & tomato	48 cans	285 mL (10 oz)	20 cans	80 cans	200 cans
Cream soup	48 cans	285 mL (10 oz)	10 cans	40 cans	100 cans
Consommé	12 cans	1.4 L (48 oz)	5 cans	17 cans	42 cans
3. MEAT AND FISH					
Canned Meat (klik)	24 cans	340 g (12 oz)	9 cans	34 cans	84 cans
Canned fish (salmon)	24 cans	225 g (8 oz)	25 cans	100 cans	250 cans
Canned fish (sardines)	24 cans	90 g (3 1/4 oz)	25 cans	100 cans	250 cans

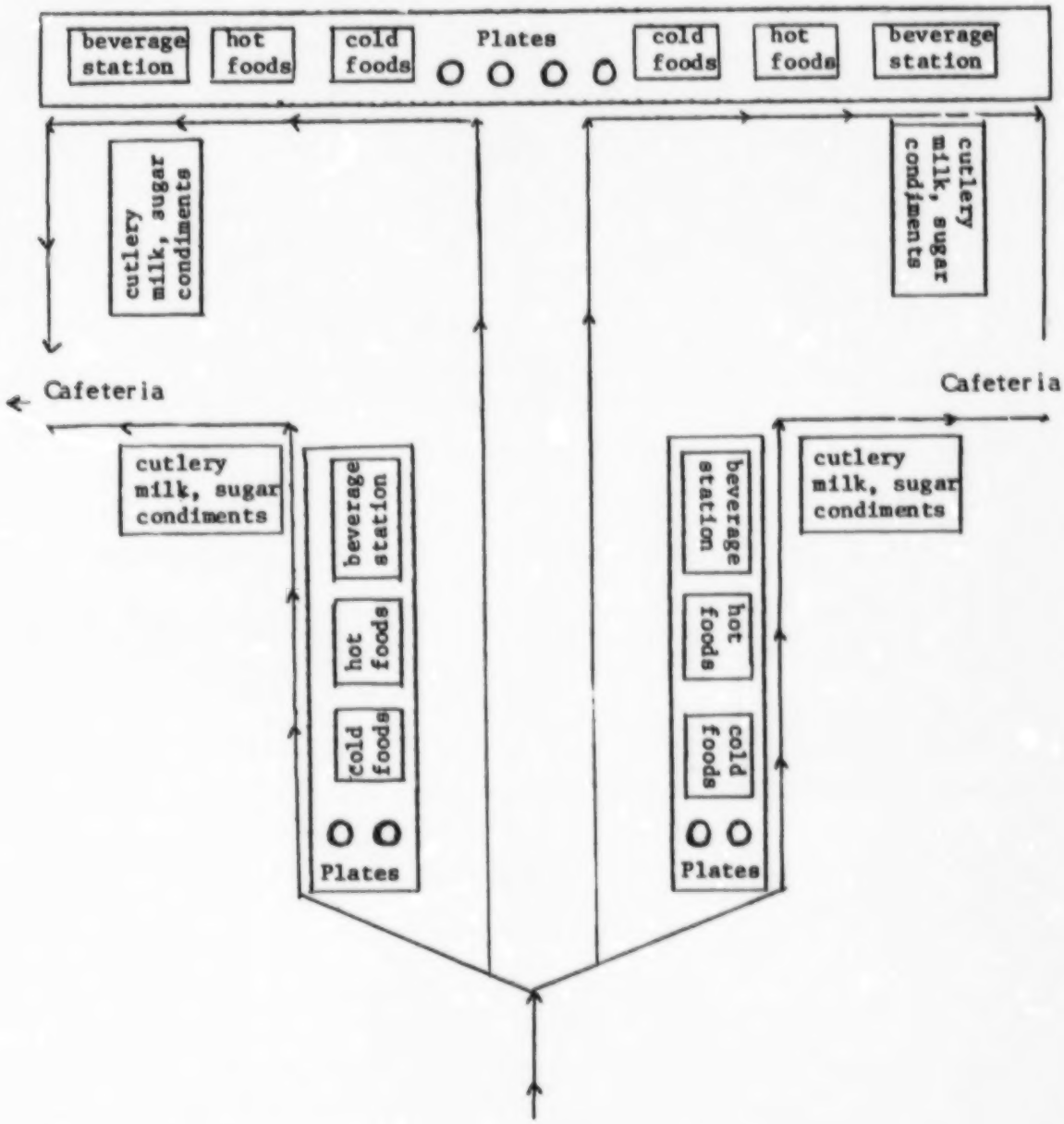
FOOD REQUISITION GUIDE

	Wholesale unit (per case)		Amount for serving 50	200	500
4. MAIN MENU					
Macaroni & Cheese	18 boxes	200 g (07 oz)	25 boxes	100 boxes	250 boxes
Baked beans	24 cans	800 mL (28 oz)	6 cans	12 cans	30 cans
Macaroni	24 boxes	1.4 L (48 oz)	1 box	4 boxes	10 boxes
and tomatoes	24 cans	800 mL (28 oz)	7 cans	28 cans	70 cans
with meat	fresh meat	5.5 kg (12 lbs)	5.5.kg (12 lbs)	22 kg (50 lbs)	60 kg (125 lbs)
and onions	1 bag	22 kg (50 lbs)	0.5 kg (1 lb)	1.8 kg (4 lbs)	50 kg (105 lbs)
5. VEGETABLES					
Peas	24 cans	400 mL (14 oz)	6 cans	24 cans	60 cans
Corn	24 cans	540 mL (19 oz)	8 cans	32 cans	72 cans
Carrots	24 cans	540 mL (19 oz)	6 cans	24 cans	60 cans
Potatoes	24 cans	540 mL (19 oz)	6 cans	24 cans	60 cans
6. FOOD					
Cheese	case	450 g (16 oz)	1.3 kg (3 lbs)	5.5 kg (12 lbs)	14 kg (30 lbs)
Butter	25 per case	450 g (1 lb)	450 g (1 lb)	1.4 kg (3 lbs)	3.5 kg (7 1/2 lbs)
Rice (soup)	24 bags	450 g (1 lb)	450 g (1 lb)	1.6 kg (3 1/2 lbs)	4 kg (9 lbs)
Rice pudding	24 bags	450 g (1 lb)	900 g (2 lbs)	2 kg (4 1/2 lbs)	8 kg (18 lbs)
Dried fruit	1 box	2.5 kg (6 lbs)	2.5 kg (6 lbs)	11 kg (25 lbs)	30 kg (66 lbs)
Jello (powdered gelatine)	36 pkgs	90 g (3 1/4 oz)	6 pkgs	24 pkgs	60 pkgs
Prepared cereals	48 pkgs	225 g (08 oz)	3 pkgs	12 pkgs	30 pkgs
Crackers	12 boxes	200 g (07 oz)	3 boxes	12 boxes	30 boxes
Bread (20 oz)	loaves	570 g (20 oz)	5 loaves	19 loaves	46 loaves
Fresh fruit	1 case		50 fresh fruits	200 fresh fruits	500 fresh fruits

IMPROVISED SERVING LINE ARRANGEMENTS

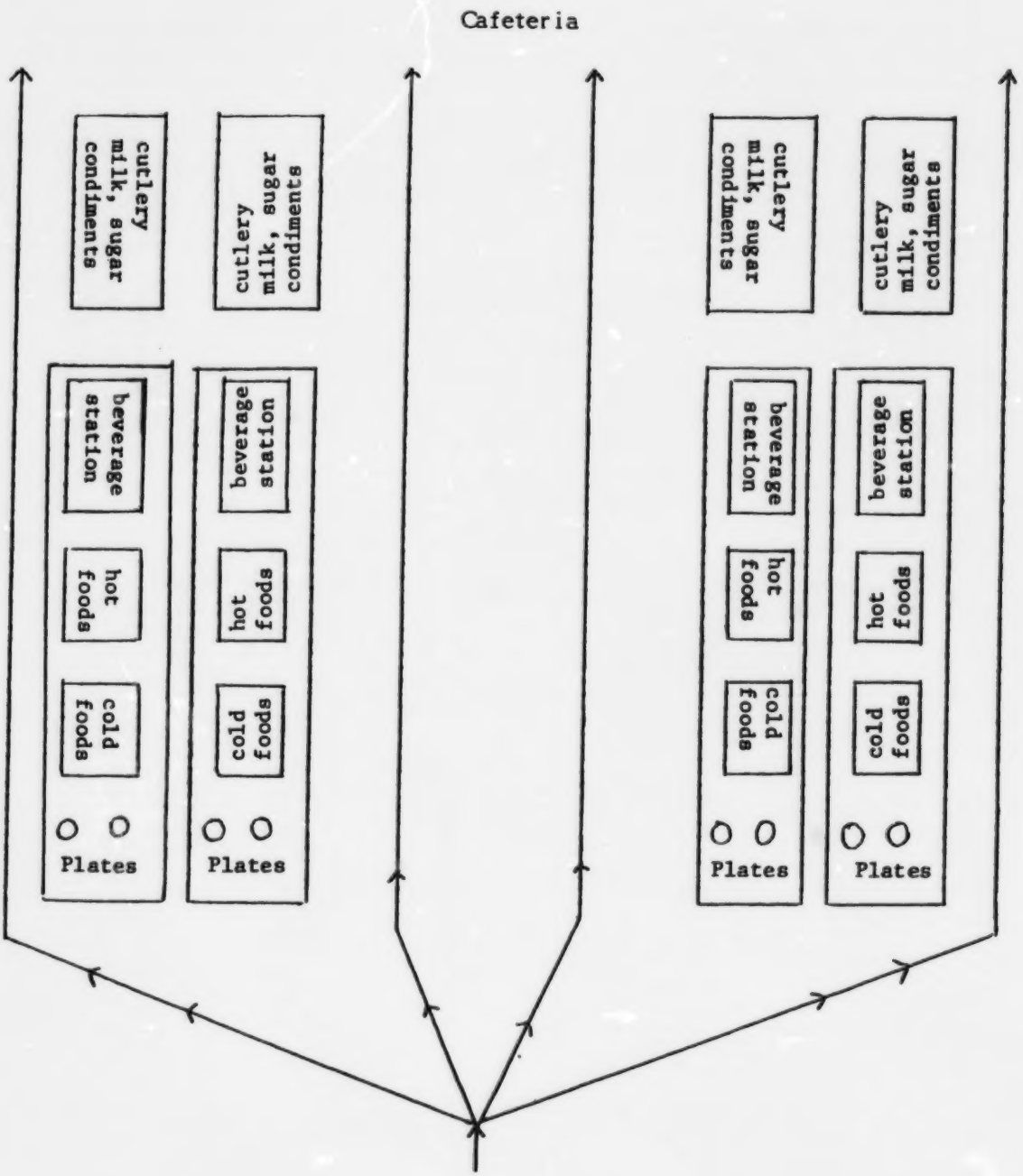
DOUBLE LINE ARRANGEMENTS

If more than 200 persons are to be served and if space permits, it would be desirable to arrange two lines. There are several possibilities, depending on the layout of the available area and the location of entrances and exits. Some suggestions follow:



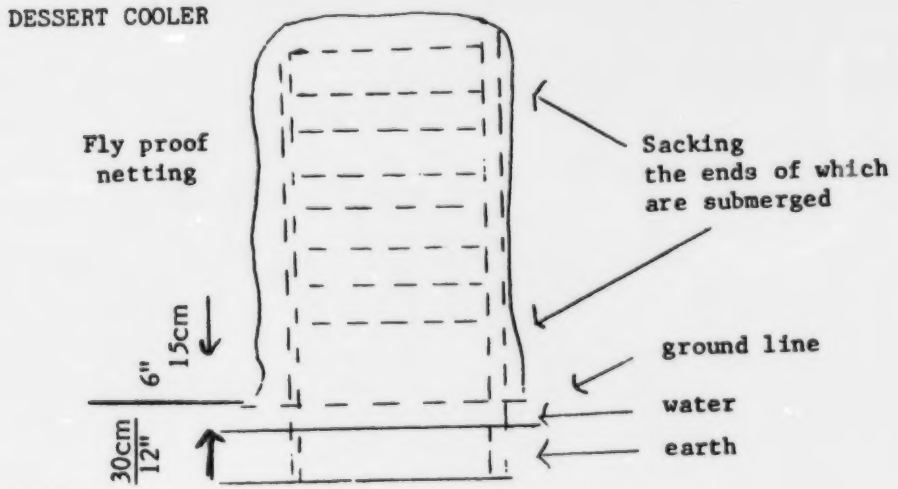
MORE THAN TWO LINES

If more than two lines are necessary, one suggestion for a four-line arrangement is as follows:



IMPROVISED REFRIGERATION

Improvised refrigeration facilities are, at best, poor substitutes for mechanical refrigeration, but under some emergency circumstances they may be necessary. Two possibilities are illustrated below:



MATERIAL

a) Orange crate, box, or four uprights with shelves
b) Flyproof netting
c) Burlap or cheesecloth to cover

CONSTRUCTION

a) The box may be made with legs 30 cm (12 inches) below the bottom shelf. The cooler is then placed in a 30 cm (12 inches) hole which is filled with water. The sacking is dampened and will absorb water from the hole. Air blowing through the damp sacking will cool the interior.

b) Other methods may be used such as:

- digging a shallow trench around the cooler, filling the trench with water and hanging the sacking in the trench;

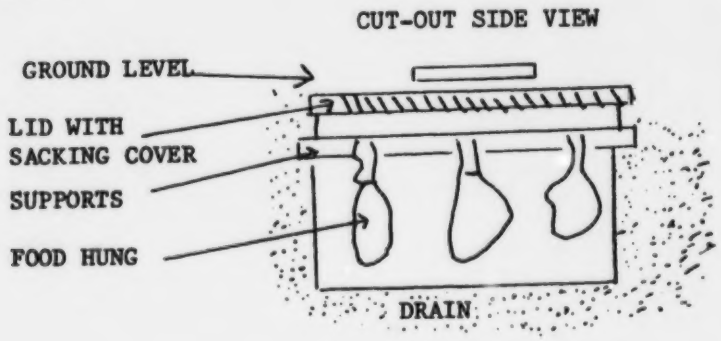
- suspending a water can with a tap above the cooler so water can drip on the sacking;

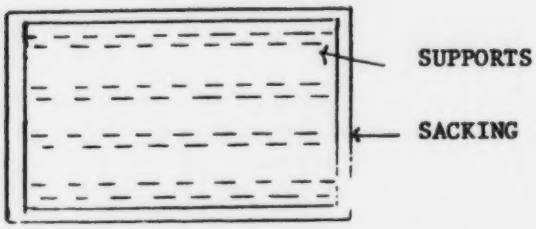
- gathering the material at the top of the box, placing the gathered end in a pan of water, and placing a stone or other weight on the material to hold it securely. The rest of the material should be draped around the box, leaving small opening.

c) The size will depend upon the requirements. An average cooler could be 1.5 m (5 feet) or 1.8 m (6 feet) high and 1.2 m (4 feet) wide and 1.0 m (3 feet) deep.

d) The cooler may be suspended to protect the contents from animals.

REACH-IN PIT COOLER





CONSTRUCTION

a) The Pit Cooler or Hole in the ground should be dug in a shady spot, if possible, and should be at least, 4 sq. m (43 sq. ft.) and 1.5 m (5 ft) deep.

b) The cover should fit as tightly as possible.

c) The sides of the pit may be lined with boards, tin, clean sacking or branches.

d) The sacking on the lid must be soaked in water at intervals.

OTHER METHODS OF COOLING

a) Place watertight containers in running stream.

b) Surround containers with water-soaked newspapers.

WATER SUPPLY

Recommendations regarding the safety of water in an emergency would normally be provided by municipal and/or provincial Health officials or Environmental Health Directorate (Health and Welfare Canada).

However, EF workers should have a general knowiedge of the problems which might arise and the measures required to provide a safe water supply in case they should be working in areas where the water supply is considered unsafe.

CHOOSING A SOURCE

Water sources should be chosen in the following priority:

a) Use approved public water systems to the fullest extent, if decleared safe with local Public Health officials.

b) As a second choice, use existing springs or wells. The quality of water from under ground is usually better than surface water. Public Health will advise.

c) If public or ground sources are not available, use surface water sources such as: rivers, streams, lakes or ponds in that order.

PRECAUTIONS WHEN USING SURFACE SOURCES

a) Take water from the point well above sewer discharges;

ɔ) avoid places where refusepiles or dumps drain into the water;

c) avoid oily areas as an unpalatable taste cannot be removed by disinfection;

d) avoid areas where there may be drainage from improvised toilets;

e) choose the clearest water possible because it will be more acceptable after disinfection. However, clarity is no guarantee of water safety.

PURIFICATION OF WATER

Follow these directions if it is necessary to purify water; boil for 10 minutes or treat water with any household bleaching solution containing hypochlorite tablets, concentrated Javelle water, or household iodine or water purification tablets. Quantities to be added to the water are given in the following table. The solution is added to the water, thoroughly mixed and permitted to stand for 30 minutes. After this

contact time, the water should have a slight chlorine or iodine taste. If this taste is not present, the dosage should be repeated and the water allowed to stand for 30 minutes before use.

DISINFECTION OF WATER

LITRES OF WATER		DOSAGE OF DISINFECTION COMPOUND		
	CLEAR	CHLORINE BLEACH	TINCTURE OF IODINE (2 1/2 %)	WATER PURIFICATION TABLETS
(1 GALLON) 4.5 LITRES		DROPS 4	DROPS 20	DROPS 8
	CLOUDY			
(1 GALLON) 4.5 LITRES		10	40	16

PLANNING OF EMERGENCY FEEDING IN HOSPITALS

1. HOSPITALS IN RECEPTION COMMUNITIES

In a major disaster, hospitals or Special Care Facilities in reception communities would be called to feed an increased number of patients, staff and volunteer workers. Hospitals would have to accommodate more bed patients. Consequently, feeding services would be complicated by extra beds in rooms and wards and in areas not previously used for patient care. Hospital kitchens and dining areas are not normally used to full capacity and in an emergency, space and equipment should not be major problems. However, plans would have to be made to convert feeding to a continuous 24-hour operation, if required and to use extra volunteer help. The following steps are suggested:

a) The Department of Dietetics, in consultation with other senior members of the dietetic staff should prepare a written emergency feeding plan to be incorporated as part of the overall hospital disaster plan. It should contain enough detail to ensure it is clear. A copy should be given to each senior dietetic employee. Copies should be provided for management, to attach one to each copy of the hospital disaster plan.

b) Alternate arrangements in case of power failure and restricted water supplies should be included in the plan.

c) Lines of succession should be established so the plan may be put into operation at any time.

d) All new staff should become familiar with the plan.

e) A set of emergency menus and a list of food supplies and equipment required for their preparation, should be compiled. The staff should be briefed on their preparation. Factors such as conservation of water, restricted food supplies and rules of safe food handling under emergency conditions should be kept in mind.

f) As far as the hospital food budget will allow an increased inventory of certain foods, particularly suitable for quick emergency meals should be maintained. Suggested foods are evaporated milk condensed or powdered milk, canned meat and fish, canned vegetables, ready to serve cereals, biscuits, sweet spreads, juices, instant beverages and sugar.

g) The number of extra workers required to carry out the plan should be determined as closely as possible.

2. HOSPITAL FEEDING IN EMERGENCY

Depending on local planning between Emergency Social Services (ESS) and Emergency Health Services (EHS) feeding in Emergency Hospitals may be the responsibility of the Emergency Feeding (EF) Service. However, existing hospitals are responsible for making their own emergency feeding plans. Pre-packaged emergency hospital units are equipped to care for 200 patients or casualties and would be set up in a suitable building in reception communities. A total staff of approximately 260 (2 shifts) Emergency Health Services' Workers would be required for their operation. At present, there are no plans to include large scale cooking equipment with the emergency hospital units. Therefore, feeding facilities and equipment would be those available in the building designated during the planning state as an Emergency Hospital, or procurable from other local resources. If facilities were not adequate in such a building, other arrangements would have to be made in the overall EF plan for the community.

For example:

a) Food could be prepared in another feeding facility or an Auxiliary Kitchen and transported to the hospital to be reheated and served.

b) An improvised kitchen could be set up in the building if space permits.

Emergency Hospital sites should be identified so that Emergency Feeding Centres in the area can be advised and requirements for feeding established.

3. TYPE OF FOOD REQUIRED

Three general types of food would be satisfactory for most patients and staff in an Emergency Hospital:

a) Juice, sweetened tea or coffee, for patients allowed clear liquids;

b) a more nourishing liquid for patients, not able to take solid food. A cream soup would be the most suitable choice.

c) Emergency type meals for those patients on a regular diet, and for all staff.

4. TYPE OF FOOD SERVICE

In an Emergency Hospital food service would be streamlined to essentials only. The following gives some suggested recommendations:

a) If carried out on the premises, food preparation should be centralized for efficient supervision.

b) It might be necessary to limit feeding to two meals per day.

c) Food for staff and ambulatory patients would be served cafeteria style.

d) Food for bed patients would be delivered in bulk to each floor.

e) Normal tray service to bed patients would be curtailed. Only a minimum of dishware and cutlery would be used. Disposable items are recommended.

f) Therapeutic diets would be kept to a minimum. Regular foods could be softened, liquified or otherwise modified to meet the particular requirement.

5. HOSPITAL IN PROBABLE TARGET AREAS

If a hospital has planned for evacuation from a probable target area, the location of the reception site would be known to the hospital administration staff. In this case, the responsibility of the Dietetic Department would be:

a) To be familiar with the feeding facilities in the pre-selected building at the reception site.

b) To determine jointly with the reception community hospital dietitian what essential food supplies might be taken at evacuation, time permitting. (Food supplies should be high in food value in relation to bulk).

c) To determine what useful portable equipment could be taken, time permitting. Some suggestions are insulated food containers, portable urns, large stock pots, ladles, large pitchers, large mixing bowls, large spoons and disposable eating utensils.

d) To devise a system to ensure that supplies can be moved at short notice. This includes assigning staff members to specific responsibities in their removal. Transportation for food and feeding equipment must be coordinated with the overall hospital transportation resources.

e) To inform and train staff regarding the evacuation plan.

f) To develop an alternate plan in the event that the hospital must be evacuated.

REFERENCES

A) **HEALTH AND WELFARE CANADA**

Emergency Services

- Your Emergency Pack (1978)
- Welfare Tips for Survival (1978)
- Emergency Services Information Pamphlet (1981)
- Institutional Feeding in Emergency (1978)

B) **HEALTH SERVICES AND PROMOTION BRANCH**

- Dietetic Department Guidelines in Larger Health Facilities 1981
- Dietetic Department Guidelines in Smaller Health Care Facilities 1981
- Evaluation and Space Programming Methodology Series (Dietetic No. 7) (1979)
- Dietary Standard for Canada (1979)
- The Canadian Mother and Child (1979)
- Nutrient Value of Some Common Foods (1979)

C) **EDUCATIONAL SERVICES (HEALTH PROTECTION BRANCH)**

- Food Additive Pocket Dictionary (1980)
- Health Protection and Food Laws (1981)

D) **AGRICULTURE CANADA**

- Planning Menus for Small Institutions (1979)
- Buying and Storing Canadian Foods (1978)
- Shopping and Nutrition (1979)